

MANAGING GROUND SQUIRRELS WITH BAIT STATIONS

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Department of Agriculture
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Bait stations are devices containing a rodenticide bait from which ground squirrels feed. Bait stations are constructed to prevent animals larger than ground squirrels from entering. Other design characteristics include weather-tightness and sufficient bait capacity so that frequent refill is not required.

Anticoagulant baits are the only rodenticides registered for use in bait stations. Anticoagulants inhibit the ability of the blood to clot and cause death primarily from internal bleeding. These are multidose anticoagulants and most require repeat feedings over several days to be effective. Studies by the Montana Department of Agriculture have shown bait stations are used by ground squirrels and that the anticoagulant baits tested are effective.

Department studies indicate bait station design seems to have little influence on their use by squirrels providing adequate access is allowed. From the applicators view there are several design characteristics that are important. In addition to providing adequate access for the squirrels, a convenient access for replenishing the bait is needed. The station should be weather-tight to prevent

bait spoilage. Moldy bait is poorly accepted, resulting in less effective control and disposing of unused, spoiled bait is costly. The station must hold a sufficient quantity of bait so the station need only be maintained once or twice a week. The stations need to be secured to the ground to prevent station upset and bait spillage by squirrels, livestock or other animals and wind. Figures 1,2 and 3 illustrate some sample bait stations that have proven effective and are easily and inexpensively constructed by the user.

Bait station placement depends on squirrel density. Maximum spacing should be no more than 200 feet. A minimum distance of 50-75 feet is sufficient even in densely populated colonies. In colonies of uniform distribution, stations can be placed in a grid arrangement. When squirrel burrows are clustered, place the stations at the sites of greatest burrow density. Where the squirrel colony is isolated from other ground squirrels, stations should be maintained for at least thirty days. Where there is potential for invasion by new squirrels, stations may show continued use by squirrels for a longer period, perhaps for the entire summer season, as new squirrels continue to move onto the treatment area. Decrease in the rate of bait consumption is an indication that control is occurring. Typically, bait consumption is high initially and frequent station maintenance is required. As squirrels die bait consumption gradually declines.

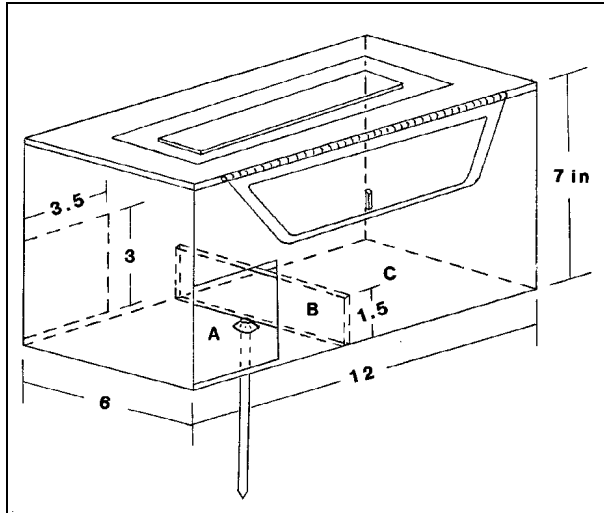


Figure 1. Ammunition Box Bait Station.

A. Feeding area. B. Bait retainer. C. Bait trough.

Bait stations may be set out anytime during the squirrels' active season. The squirrels may initially avoid the stations. A familiarization period of from 1 - 2 weeks where use of the stations slowly increases can be expected.

Although prebaiting the stations with untreated grain is not necessary, it is recommended. During the squirrels' familiarization period toxic bait is not unnecessarily exposed to nontarget animals or inclement weather. After use of the stations by the squirrels has been well established remove any remaining prebait and replace it with the toxic bait. The toxic bait will be fresh. Since the squirrels have become accustomed to obtaining food from the stations it will likely be accepted faster.

Applicators using anticoagulant baits must recognize they act slowly and patience is required. Death takes 5 to 10 days after feeding begins and not all squirrels will have equal access to the bait. The applicator must also commit himself to regular maintenance of the bait stations to assure the squirrels have an

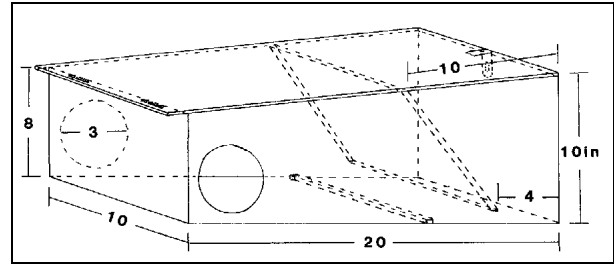


Figure 2. Wood Bait Station.

Constructed of dimension lumber or exterior grade plywood or chipboard.

adequate supply at all times. Stations that are frequently empty will result in poor control and extends the period of time that stations must be operated.

Single dose, acute baits such as zinc phosphide have been suggested for use in bait stations. This is not a safe nor generally effective practice and use of bait stations in this manner is not recommended.

The acute baits are fast acting poisons. Symptoms of poisoning occur shortly after ingestion. Some ground squirrels exposed to an acute bait may become sick before consuming a lethal dose and stop eating. Survivors exposed a second time to the bait may associate their sickness with the bait and reject it, becoming bait shy. Because of this, hand or broadcast application of acute baits is not recommended more than once per year. Use of zinc phosphide or other acute baits in bait stations repeatedly exposes surviving ground squirrels to the bait, continually reinforcing the squirrels' aversion to the bait. For this reason

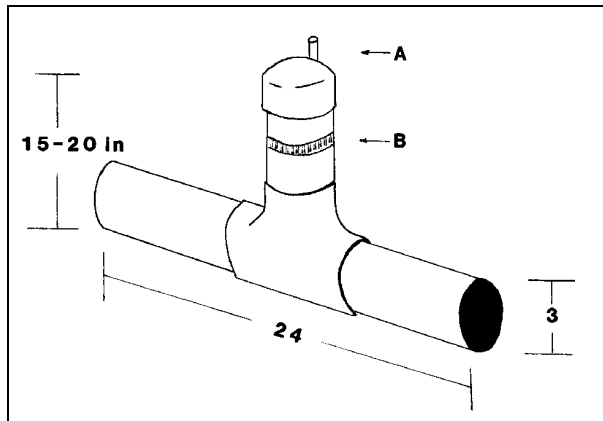


Figure 3a. "T" Style PVC Bait Station.

External View. A. Re-bar stake.
B. Adjustable pipe clamp.

acute baits are not recommended for use in bait stations. Anticoagulant baits, on the other hand, have no aversive taste and symptoms of poisoning do not occur until after a lethal dose is usually consumed.

Although use of bait stations usually reduces nontarget hazards, acute baits in bait stations may actually increase hazard to nontarget animals. If the contents of a bait station containing a single dose bait are spilled a large quantity of bait will be exposed, greatly increasing the hazards to livestock and wildlife. Numerous ground squirrel carcasses may be concentrated within a few feet of the station. The concentration of poison carcasses increases the hazard to predators and scavengers from secondary poisoning. Because of problems with bait shyness and increased nontarget hazard, use of zinc phosphide or other acute baits is not generally effective or safe and not recommended.

The addition of salt has been recommended by some to increase bait acceptance. Studies have shown lightly salted bait is no better accepted than

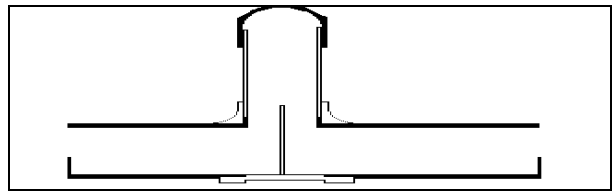


Figure 3b. "T" Style PVC Bait Station.

Cross sectional view. Divider at center - prevents squirrels from passing through pipe and pushing bait out of the station. Bait retainers at ends help hold bait inside the station.

unsalted bait. In fact, overly salted bait is likely to reduce bait consumption. Bait should not be scattered outside the station to induce use of them. The squirrels will use the stations as they become accustomed to them, even though it may take 1-2 weeks. Placing bait outside the station defeats its purpose by increasing hazard to nontarget animals and exposing the bait to weather.

Because of the cost of bait and station construction and the labor of application, the most appropriate use of bait stations is on small acreages that contain isolated squirrel populations. Such areas might include ditch banks, small acreage crops and pastures, orchards and truck farms, cemeteries, golf courses and recreation areas.

Bait stations may also be used along crop borders to intercept squirrels moving from adjacent areas into the crop to feed or set up residence. Crop damage is unlikely to be eliminated by use of bait stations alone but damage might be reduced below a level of economic concern.

Use of bait stations on larger acreages might be considered in cases where use of grain bait has become ineffective or certain environmental hazards prevent the use of exposed baits. Although initially more expensive, bait stations using anticoagulant bait do work. Once ground squirrel populations have been reduced to a low level an annual maintenance program can be conducted at a much lower cost.

Bait stations do offer protection from primary poisoning to many nontarget wildlife species and domestic animals. They provide an alternative control method in areas where traditional control methods may be considered too hazardous to wildlife, domestic animals and people.

When using bait stations, particularly in areas open to public access, it is advisable for applicators to place warning signs on the stations. Minimal information should identify the stations as containing poison bait, the active ingredient and where to obtain further information.

Do not apply these baits by spot or broadcast application. A single application will be ineffective and exposure of baits outside of bait stations will be hazardous to nontarget animals.

The majority of ground squirrels die below ground in their burrows. Some will die on the surface and present a hazard to scavengers that may eat the carcasses. Exposure to secondary nontarget animals can be reduced by monitoring the treated area for carcasses and burying any that are found. Keep pets out of the area during the treatment period. Notify neighbors that treatment is

occurring and advise confinement of pets to prevent them from straying on the treatment area. Any pet found displaying anticoagulant symptoms should be placed under veterinary care for antidotal Vitamin K treatment.

Before using these or any other pesticide products carefully read and understand the pesticide label. When not in use store pesticides in locked storage. Always keep pesticides in the original, labeled container.

For additional information or assistance contact:
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Helena, Montana 50620-0201.

In Billings:
Monty Sullins Phone - (406) 652-3615

In Helena:
Daniel Sullivan Phone - (406) 444-5400

Registered Bait Station Anticoagulant:
Ramik Green - (Diphacinone)
Hopkins Ag Chemical Co.
Madison, WI 53707

**MONTANA POISON CONTROL
INFORMATION CENTER:
1-800-525-5042**

**ROCKY MOUNTAIN
POISON CENTER:
1-800-332-3073**